CHRISTMAS TREE PROJECT

Using a protractor, you will create a Christmas tree that is symmetrical.

Your tree must have

- A base with an area of 9 units
- TWO right angles
- TWO 45° angles
- TWO 35° angles
- TWO 25° angles
- ONE obtuse angle

Please keep in mind:

- **Your tree must ONLY have STRAIGHT lines.**
- **You MUST USE A PROTRACTOR FOR THIS ASSIGNMENT.**
- **POINTS WILL BE TAKEN OFF IF STRAIGHT LINES ARE NOT USED.**
- BONUS points will be awarded for adding a symmetrical star.

STEPS FOR CREATING YOUR TREE:

1. Find the center of the page by folding your paper in half.

2. Draw a square tree stump with an area of 9 units.

3. Next, draw a straight line on top of the tree stump that goes horizontally across the page.

4. Measure a 45° angle on each end of the line that points upwards. Extend your lines to go through 5 boxes.

5. Make a horizontal line to make your second level. This line should extend outward 3 boxes on each side.

6. Now, measure a 35° angle on each end of the second lines that point upwards. Extend your lines to go up 3 boxes.

7. Go out 2 boxes on each side.

8. Measure a 25° angle on each side of the tree. Extend your lines to the line of symmetry created by your paper fold.

9. Now label your angle measures.

10. Still using the protractor, trace over your lines in green and brown marker or crayon.

EXTRA CREDIT:

- Make a symmetrical star on top of your tree.

- Make 2 symmetrical diamond ornaments on your tree.

CHRISTMAS TREE PROJECT
(Intermediate)

Using a protractor, you will create a Christmas tree that is symmetrical.

Your tree must have

- A base with an area of 9 units
- TWO right angles
- TWO 45° angles
- TWO 35° angles
- TWO other acute angles
- ONE obtuse angle

Please keep in mind:

- **Your tree must ONLY have STRAIGHT lines.**
- **You MUST USE A PROTRACTOR FOR THIS ASSIGNMENT.**
- **POINTS WILL BE TAKEN OFF IF STRAIGHT LINES ARE NOT USED.**
- BONUS points will be awarded for adding a symmetrical star.

STEPS FOR CREATING YOUR TREE:

1. Find the center of the page by folding your paper in half.

2. Draw a square tree stump with an area of 9 units.

3. Next, draw a straight line on top of the tree stump that goes horizontally across the page.

4. Measure a 45° angle on each end of the line that points upwards. Extend your lines to go through 5 boxes.

5. Make a horizontal line to make your second level. This line should extend outward 3 boxes on each side.

6. Now, measure your next angle (35° angle or another acute angle) on each end of the second lines that point upwards.   Extend your lines to go up 3 boxes.

7. Go out 2 boxes on each side.

8. Measure your next angle (35° angle or another acute angle) on each side of the tree. Extend your lines to the line of symmetry created by your paper fold.

9. Now label your angle measures.

10. Still using the protractor, trace over your lines in green and brown marker or crayon.

EXTRA CREDIT:

- Make a symmetrical star on top of your tree.

- Make 2 symmetrical diamond ornaments on your tree.
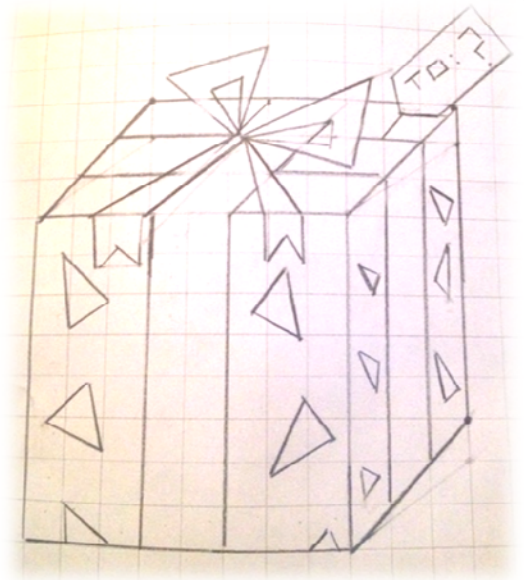
Advanced Christmas Gift Project

Using a protractor, you will create a Christmas present.

Your present must have:

- The area of the main face of the present is 64 units, and the perimeter is 32 units.
- FOUR 45° angles
- FOUR 135° angles
- FOUR right angles
- On the wrapping paper, FOUR acute triangles
- SIX sets of parallel lines

Please keep in mind:

- **Your present must ONLY have STRAIGHT lines.**
- **You MUST USE A PROTRACTOR FOR THIS ASSIGNMENT.**
- **POINTS WILL BE TAKEN OFF IF STRAIGHT LINES ARE NOT USED.**
- BONUS points will be awarded for adding a bowtie and a gift tag.

STEPS FOR CREATING YOUR PRESENT:

1. In the bottom left corner of the page, create the main face of your cube present with an area of 64 units and perimeter of 32 units.

2. In the top left corner of the gift, create a 45* angle that extends to the top right. Extend this line through 4 boxes.

3. In the top right corner of the gift, create a 135° angle that extends to the top right. Extend this line through 4 boxes.

4. Connect your two extended lines by drawing a horizontal line that is parallel to the top line of your first square (the main face of your gift). These two parallel lines will be separated by 4 rows of boxes.

5. Now we need to create a 45 angle in the bottom right corner of the main face of this gift. Your new line will need to go through 4 boxes.

6. Now connect your new line to the line you drew in step 3. You are using a vertical line to connect these two lines.

7. Great! Next, you are ready to start creating the ribbon! Our first ribbon is going to go in the middle of the main face of this present. It should be 2 units wide.

8. When you get ready to make the other sides of the ribbon, you will want to be mindful of using the same angle measures that you used on previous sides so that you maintain the same perspective. You want to create parallel lines in this process.

9. Now let's see if you can figure the rest out! Don't forget to add your acute triangles to the wrapping paper once you are done adding your ribbon. Make sure you use the straight edge of your protractor to make your lines straight!

EXTRA CREDIT:

- Using only straight lines, add a bowtie to your present.

- Using only straight lines, add a gift tag and a TO line on the gift tag to your present using only straight lines.